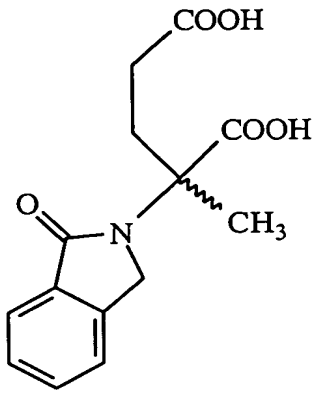
Claims

What is claimed is:

1. A compound having the formula



2. A stereoisomer of the compound of Claim 1, which is R-(+)-2-methyl-2-phthalimidinoglutaric acid.

3. A stereoisomer of the compound of Claim 1, which is S-(-)-2-methyl-2-phthalimidinoglutaric acid.

4. A process for preparing 2-methyl-2-phthalimidinoglutaric acid comprising the steps of

a) reacting 2-methylglutamic acid, phthalic anhydride, and an amine in an anhydrous solvent;

b) recovering the 2-methyl-N-phthaloylglutamic acid intermediate;

c) dissolving the 2-methyl-N-phthaloylglutamic acid intermediate in acid followed by the addition of zinc dust;

d) heating the mixture formed in c) under reflux in an inert atmosphere; and

e) recovering, and optionally purifying, the resulting 2-methyl-2-phthalimidinoglutaric acid.

5. The process of Claim 4, wherein the amine is selected from the group consisting of triethyl amine, diethyl amine, and pyridine.

6. The process of Claim 4, wherein the acid is glacial acetic acid.

7. A process for the separation of the (S) and (R) enantiomers of DL-2-methyl-2-phthalimidinoglutaric acid comprising the steps of

a) placing a solution of DL-2-methyl-2-phthalimidinoglutaric acid on a chiral HPLC column; and

b) separately eluting R-(+)-2-methyl-2-phthalimidinoglutaric acid and S-(-)-2-methyl-2-phthalimidinoglutaric acid.

8. The process of Claim 7, wherein (R)-(+)-2-methyl-2-phthalimidinoglutaric acid and (S)-(-)-2-methyl-2-phthalimidinoglutaric acid are separately eluted from the HPLC column with a solvent mixture comprising $CH_3CN/MeOH/H_2O/HOAc$ in a molar ratio of 1:1:5:0.1.

9. A process for the separation of the (S) and (R) enantiomers of DL-2-methyl-2-phthalimidinoglutaric acid comprising the steps of

a) forming a diester of DL-2-methyl-2-phthalimidinoglutaric acid;

b) separating the diester enantiomers with an enantiomerically-specific hydrolysis agent;

c) separating the hydrolyzed products on a silica gel column; and

d) completely hydrolyzing the individual enantiomers to form R-(+)-2-methyl-2-phthalimidino-glutaric acid and S-(-)-2-methyl-2-phthalimidinoglutaric acid.

10. The process of Claim 9, wherein the enantiomerically-specific hydrolysis agent in step (b) is ChiroCLEC™-BL.

11. The process of Claim 9, wherein the individual enantiomers are completely hydrolyzed by treating the partially hydrolyzed intermediates formed in step (c) with a 1:1 mixture of glacial acetic acid and concentrated hydrochloric acid.

12. A pharmaceutical composition comprising a pharmaceutically acceptable carrier and a compound selected from the group consisting of DL-2-methyl-2-phthalimidinoglutaric acid, R-(+)-2-methyl-2-phthalimidinoglutaric acid, S-(-)-2-methyl-2-phthal-imidinoglutaric acid and combinations thereof.

13. The composition of Claim 12, wherein the composition is in the form of tablets, pills, capsules, suppositories, sachets, granules, powders, creams, lotions, ointments, patches, liquid solutions, suspensions, dispersions, emulsions, syrups, liposomes, microparticles, and microcapsules.

14. A method of inhibiting undesired angiogenesis in a human or animal comprising administering to the human or animal with undesired angiogenesis an angiogenesis inhibiting amount of DL-2-methyl-2-phthalimidinoglutaric acid, R-(+)-2-methyl-2-phthal-imidinoglutaric acid, S-(-)-2-methyl-2-phthalimidinoglutaric acid or combinations thereof.

15. The method of Claim 14, wherein the administration is oral, parenteral, rectal, vaginal, topical, transdermal, intravenous, intramuscular, intraperatoneal, or subcutaneous.

16. The method of Claim 14, wherein the effective amount is from approximately 100 mg/kg/day to approximately 2000 mg/kg/day.

17. The method of Claim 14, wherein the undesired angiogenesis occurs in a disease selected from the group consisting of diabetic retinopathy, retinopathy of prematurity, corneal graph rejection, neovascular glaucoma, retrolental fibroplasia, epidemic keratoconjunctivitis, Vitamin A deficiency, contact lens overwear, atopic keratitis, superior limbic keratitis, pterygium keratitis

sicca, sjogren's syndrome, acne rosacea, phylectenulosis, syphilis, *Micobacteria* infections, lipid degeneration, chemical burns, bacterial ulcers, fungal ulcers, *Herpes simplex* infections, *Herpes zoster* infections, protozoan infections, Kaposi's sarcoma, Mooren's ulcer, Terrien's marginal degeneration, marginal keratolysis, trauma, rheumatoid arthritis, systemic lupus erythematosis, polyarteritis, Wegener's sarcoidosis, scleritis, Stevens-Johnson disease, radial keratotomy, macular degeneration, sickle cell anemia, sarcoid, pseudoxanthoma elasticum, Paget's disease, vein occlusion, artery occlusion, carotid obstructive disease, chronic uveitis, chronic vitritis, Lyme's disease, Eales' disease, Behcet's disease, infections causing retinitis or choroiditis, presumed ocular histoplasmosis, Best's disease, myopia, optic pits, Stargardt's disease, pars planitis, chronic retinal detachment, hyperviscosity syndromes, toxoplasmosis, post-laser complications, rubeosis, abnormal proliferation of fibrovascular or fibrous tissue, proliferative vitreoretinopathy, Bartonellosis, hemangiomas, Osler-Weber-Rendu disease, solid tumors, blood-borne tumors, acquired immune deficiency syndrome, ocular neovascular disease, age-related macular degeneration, osteoarthritis, gliomas, diseases caused by chronic inflammation, Crohn's disease, ulceritive colitis, tumors of rhabdomyosarcoma, tumors of retinblastoma, tumors of Ewing's sarcoma, tumors of neuroblastoma, tumors of osteosarcoma, leukemia, psoriasis, atherosclerosis, acoustic neuroma, neurofibroma, trachoma, pyogenic granulomas, and pemphigoid.

18. The method of Claim 17, wherein the administration is oral, parenteral, rectal, vaginal, topical, transdermal, intravenous, intramuscular, intraperatoneal, or subcutaneous.

19. The method of Claim 17, wherein the effective amount is from approximately 100 mg/kg/day to approximately 2000 mg/kg/day.

20. A method of treating cancer in a human or animal comprising administering to the human or animal having cancer a cancer treatment effective amount of DL-2-methyl-2-phthalimidinoglutaric acid, R-(+)-2-methyl-2-phthalimidino-glutaric acid, S-(-)-2-methyl-2-phthalimidinoglutaric acid or combinations thereof.

21. The method of Claim 20, wherein the administration is oral, parenteral, rectal, vaginal, topical, transdermal, intravenous, intramuscular, intraperatoneal, or subcutaneous.

22. The method of Claim 20, wherein the effective amount is from approximately 100 mg/kg/day to approximately 2000 mg/kg/day.